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wall, and concealed within it, and as the arm on the axis and the curved arm *d* must be lessened to suit the thickness of the wall, the weight must be increased, or the lever lengthened, to gain sufficient power.

No. VI.

APPARATUS FOR SECURING AND RELEASING A SHIP'S ANCHOR.

The GOLD VULCAN MEDAL *was this session presented to Mr. W.* SPENCER, *Ordnance-place, Chatham, for his Apparatus for securing and letting go Ships' Anchors; a model of which has been placed in the Society's repository.*

11, Ordnance-place, Chatham,
October 5, 1825.

SIR,

HAVE to request that you will be pleased to submit, for the consideration of the Society of Arts, the accompanying model (which I also request the Society to accept) of part of the bow of a 74-gun ship, fitted with my plan for letting go ships' anchors.

The said plan was projected in 1819, and first fitted in the Forte, at the express desire of Captain Sir Thomas Cochrane, in 1820; and subsequently in numberless other ships, by request of the respective captains.

The Navy Board have awarded me the sum of 150*l.*, and ordered its general adoption in his majesty's navy, as will be seen by the subjoined copy of a letter from their secretary.

As there are, doubtless, many naval gentlemen amongst the members of the Society, they will perceive the advantages which my plan possesses over the old, tardy, and often extremely dangerous mode of letting go ships' anchors, particularly if the ship is running on a lee-shore; as well as the considerable saving in the wear and tear of the stopper and shank-painter ropes.

I am, Sir,
&c. &c. &c.
Wm. Spencer.

A. Aikin, Esq.
Secretary, &c. &c.

(Copy.)

Sir,
Navy Office, Aug. 8, 1825.

The commissioners of the navy having, in consequence of your letter of the 28th ultimo, again taken into consideration the reports which had been received previously to the 11th ultimo, and likewise others subsequently received, on the merits of the stopper and shank-painter of your invention, I have their commands to acquaint you, that they have now determined on the general adoption thereof; and have also come to a resolution to allow you 100*l.*, in addition to the 50*l.* already awarded; and in authorizing you to draw upon the Board for that sum, I am to apprize you that they have much satisfaction in thus marking their testimony of the benefit the service will receive from your zeal and attention to its interests.

I am, Sir,
&c. &c. &c.
G. Smith.

Mr. W. Spencer,
11, *Ordnance-place, Chatham.*

Reference to the figures.—Plate IV.

Fig. 1, a bird's eye or horizontal view of the anchor, as secured to the side of the ship; *a* the shank, *b b* the flukes, of which one rests on the channel of the ship, and *c* the stock of the anchor. The fast end *d* of the shank painter is a rope secured to the timber head *e*, and terminating in a chain *f*, which passes round the shank of the anchor, and has its last link placed over the trip bolt of the machine *g*. The stock is fastened by three or four turns of rope *i*, to a ring *j* in the top side. Through the head of the anchor *k* passes the ring *l*, fig. 2, which is supported by a rope called the stopper *m m m*, having one end made fast to the timber-head *n*, thence passing over the chock *o* fixed to the cat-head *p p*, then doubling down through the ring of the anchor, and having the link in which the running end terminates, supported by the trip-bolt of the machine *q*.

Fig. 3 is a side view of the machine *g*, fig. 1; *f* part of the chain of the shank-painter, the last link of which is laid over the trip-bolt *r*; this bolt falls forward, making nearly a semicircular turn on the axis *s*, as shown by the dotted line, when not supported by the bar or lever *t*. This bar is in figure like the half of a pair of curved forceps, its hook or loop *u* embraces the trip-bolt *r*, it moves on the fulcrum *v*, and is perforated at the end to receive a wooden bar *w*, which lengthens that arm of the lever when required; *y* is the iron frame which holds both the trip-bolt and the lever; it is let into the side of the ship, as shown by the dotted lines, and is secured by the bolts and staples *x x*; a pin *z* passes through a hole in the frame, and, till it has been withdrawn, prevents all motion of the lever in the direction required for loosing the trip-bolt.

Fig. 4 is an elevation of part of the ship's side from within, in which *d* and *e* represent the same objects as they do in fig. 1, and *a* is the front of the apparatus *g*.

Fig. 5 is *a* in fig. 4 on an enlarged scale; *c c* is an angular slit in the ship's side, to allow *b*, the hollow end of the lever *t*, fig. 3, to move sufficiently to release the trip-bolt *r*, fig. 3; *w w* is the wooden bar *w*, fig. 3, suspended by two rings, which is its proper place when not actually in use; *z* is the pin marked by the same letter in fig. 3.

Figs. 7, 8, 9, are a lateral elevation, a front elevation, and a bird's eye view of the apparatus *q*, figs. 1 and 2, by which the stopper-rope *m m m*, fig. 2, is held fast, or cast off. It consists essentially of the same parts as that for the shank-painter already described; *t* the long arm of the lever bar, having a hole at the end, through which a rope is passed when the stopper is to be cast off; *v* the centre or fulcrum on which the bar moves; *u* the hooked short arm of the lever, embracing and securing the trip-bolt *r*, on which is hung the chain *f* by which the stopper is terminated; *s*, fig. 8, the pin or axis on which the trip-bolt turns. In order to cast off the stopper, reeve a rope through the hole at the end of the lever bar *t*, draw out the pin *z*, and hawl on the rope; the bar will turn a few degrees on the pin *v*, the hooked end *u* will be withdrawn from the trip-bolt *r*, and this being no longer supported, will fall forwards, and allow the chain *f* to slip off.

For the usual mode of securing and releasing the anchor of large ships, the reader is referred to volume xlii. of the Society's Transactions, page 99, in which is a description of an apparatus by Captain G. G. Burton, for the same purpose as Mr. Spencer's, which was rewarded by the Society in the session 1823-4. The only document sent at that time by Captain Burton, from which the date of his invention can be inferred, is Captain Warren's letter, page 103, from which it may be concluded that Captain Burton's plan was tried on board the Seringapatam, some time previous to April, 1821. It, however, appears, from subsequent inquiry, that a Navy Board order, dated July 29, 1820, was addressed to the officers of Chatham-yard, directing them to fit Captain Burton's cat-head stopper on board the Forte.

No. VII.

SHOT CARTRIDGE.

The sum of FIFTEEN GUINEAS *was this session presented to Mr.* JOSHUA JENOUR, *Jun.* 31, *William-street, Hampstead-road, for his Shot Cartridge. The following communication has been received from the candidate, and the punch for making the cartridge cases, as well as specimens of the cartridges themselves, have been placed in the Society's repository.*

31, William-street, Hampstead-road,
SIR, November 2, 1825.

GIVE me leave to offer to the notice of the Society of Arts an invention of mine, for the purpose of shooting at much greater distances than can be accomplished in the present way of charging guns, consisting in a sort of shot-cartridge, constructed upon a new principle, totally different from any thing of the kind hitherto used, and